

Abstract

A hydrocarbon feedstock containing C_5 olefins, C_5 diolefins, CPD, DCPD, and aromatics is processed by the steps of heating a hydrocarbon feedstock containing CPD, DCPD, C_5 diolefins, benzene, toluene, and xylene in a heating zone, to dimerize CPD to DCPD, thereby forming a first effluent; separating the first effluent into a $C_6 +$ stream and a C_5 diolefin stream; separating the $C_6 +$ stream into a $C_6 - C_9$ stream and a $C_{10} +$ stream; separating the $C_{10} +$ stream into a fuel oil stream and a DCPD stream; and hydrotreating the $C_6 - C_9$ stream to thereby form a BTX stream.

In an alternate embodiment, the hydrocarbon feedstock is processed by the steps of heating the hydrocarbon feedstock in a heating zone, to dimerize CPD to DCPD, thereby forming a first effluent; separating the first effluent into a $C_5 - C_9$ stream and a $C_{10} +$ stream; separating the $C_{10} +$ stream into a fuel oil stream and a DCPD stream; contacting the $C_5 - C_9$ stream with a selective hydrogenation catalyst, in a first reaction zone and in the presence of hydrogen, to hydrogenate at least a portion of the diolefins, alkynes, and styrene contained in the $C_5 - C_9$ stream, thereby forming a second effluent; separating the second effluent into a $C_6 - C_9$ stream and a C_5 olefin stream; and contacting the $C_6 - C_9$ stream with a hydrodesulfurization catalyst, in a second reaction zone and in the presence of hydrogen, to desulfurize at least a portion

20 of the sulfur-containing compounds contained in the C₆ - C₉ stream thereby forming a BTX stream.